

## **THERMOELECTRIC MATERIALS WITH ENHANCED SEEBECK COEFFICIENT**

### **ABSTRACT OF THE DISCLOSURE**

A thermoelectric nanogranular material with an enhanced Seebeck coefficient is provided. The thermoelectric nanogranular material includes particles having a grain size  $d$ . The grain size  $d$  is characterized by the relationship  $mfp/2 < d < 5mfp$ , where  $mfp$  is the phonon-limited mean free path of an equivalent bulk thermoelectric material prior to processing the bulk thermoelectric material into the thermoelectric nanogranular material having a grain size  $d$ . A method of making a thermoelectric nanogranular material is also provided. The method includes preparing a bulk thermoelectric material, reducing the bulk thermoelectric material into a powder, and filtering the powder to retain only those particles having a grain size  $d$ . The method also includes pressing the retained particles at a predetermined pressure and sintering the pressed particles at a predetermined temperature for a predetermined period of time in a predetermined atmosphere.